Order No. ITD1107096BE

Service Hints

Plasma Television

<PDP 2011 Model>

TH-P65/50VT30T
TH-P55/50/42ST30T
TH-P42UT30T
TH-P50/42U30T
TH-P50/42X30T

TH-P50VT30T

Troubleshooting Guide

- Ver 1.1-

This service hints is published for technicians and engineers for repair.
And it gives you the information how to judge the defective board of PDP.
In the future,we will improve the contents for more easy diagnostic and troubleshooting.

Please file and use this Service Hints together with the main service manual and other publications related to models.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

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1. 2011 PDP Line up & Feature Comparison

1. 2011 PDP Line up & Feature Comparison

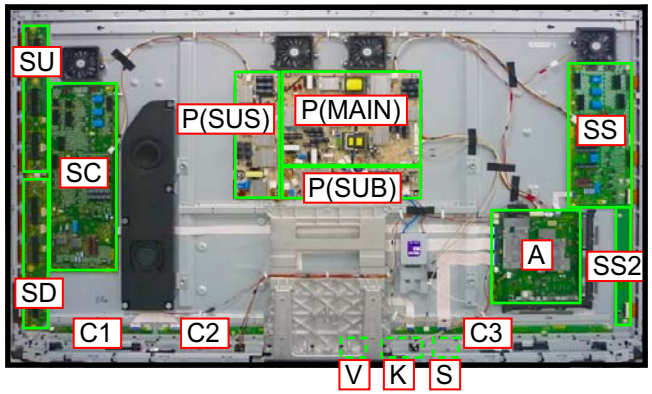
		VT30 Series	ST30 Series	UT30 Series	U30 Series	X30 Series
Picture	Size	65/50	55/50/42	42	50/42	50/42
	Full HD 3D	Y	Y	Y	—	—
	3D Active Shutter Eyewear	2 included	Not Included	Not Included	—	—
	Contrast Ratio	5,000,000:1	5,000,000:1	2,000,000:1	2,000,000:1	2,000,000:1
	Shades of Gradation	6,144	6,144	6,144	6,144	4,096
	Moving Picture Resolution	1,080 lines	1,080 lines	1,080 lines	900 lines	720 lines
	THX Mode	Y	—	—	—	—
	ISFccc	Y	—	—	—	—
	3D Colour Management	Y	—	—	—	—
Sound	Speakers	Dual Speaker, Woofer	Full-range x 2 (L, R)	Full-range x 2 (L, R)	Full-range x 2 (L, R)	Full-range x 2 (L, R)
Networking	HDMI Input	4 (4 side)	4 (1 side, 3 rear)	3 (1 side, 2 rear)	3 (1 side, 2 rear)	3 (1 side, 2 rear)
	Support Feature	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)
	USB	3 (3 side)	3 (3 side)	3 (2 side, 1 rear)	2 (2 side)	2 (2 side)
	PC input	Y	Y	Y	Y	Y
	VIERA Connect	Y	Y	Y	—	—
	Wireless LAN Adaptor	Y (included)	WiFi Ready	WiFi Ready	WiFi Ready	WiFi Ready
	DLNA	Y	Y	Y	Y	Y
Others	Swivel	Only 50	Only 50	—	—	—
	One-Sheet-of-Glass Design	Y	—	—	—	—

2. PCB Location & Function

2. PCB Location & Function

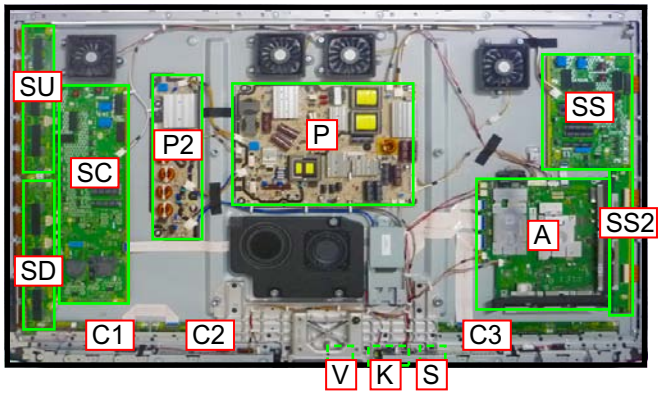
VT30 Series

TH-P65VT30T



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P(MAIN)-Board should be exchanged for service.	N0AE6KM00008
	Power Supply Non serviceable. P(SUS)-Board should be exchanged for service.	N0AE6KM00004
	Power Supply Non serviceable. P(SUB)-Board should be exchanged for service.	N0AE6KM00005
A	Main AV input, processing	TZTNP01MHUM
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1MTUA
S	Power Switch	TXN/S1MTUA
V	3D Eyewear transmitter	TXN/V1MTUA
C1	Data Driver (Lower Right)	TXNC111UHK
C2	Data Driver (Lower Center)	TXNC211UHK
C3	Data Driver (Lower Left)	TXNC311UHK
SC	Scan Drive	TXNSC11UHK
SS	Sustain Drive	TXNSS11UHK
SS2	Sustain out (Lower)	TXNSS211UHK
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11UHK
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11UHK

TH-P50VT30T

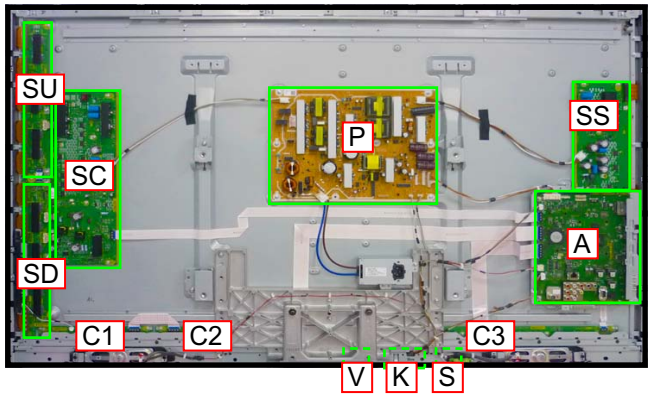


Board Name	Function	Parts Number
P	Power Supply	TXNP11QJUE
P2	Power Supply	TXNP21PNUB50
—	———	———
A	Main AV input, processing	TZTNP01MFUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
S	Power Switch	TXN/S1MZUJ46
V	3D Eyewear transmitter	TXN/V1MZUJ46
C1	Data Driver (Lower Right)	TXNC11NBUJ50
C2	Data Driver (Lower Center)	TXNC211GGK50
C3	Data Driver (Lower Left)	TXNC311GGK50
SC	Scan Drive	TXNSC11GGKB
SS	Sustain Drive	TXNSS11GGK50
SS2	Sustain out (Lower)	TXNSS211GGK
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MUUA50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1NBUJ50

2. PCB Location & Function

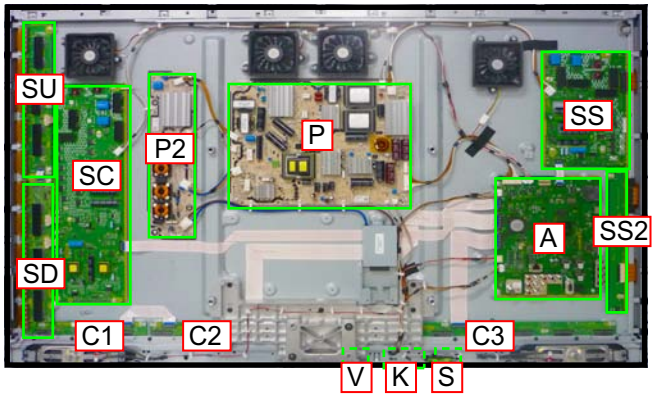
ST30 Series

TH-P55ST30T



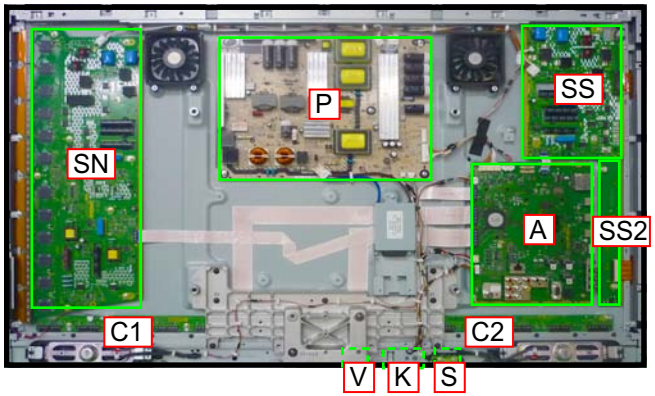
Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	TXN/P1MZUA
—	—	—
A	Main AV input, processing	TZTNP01MMUM
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1MTUA
S	Power Switch	TXN/S1MTUA
V	3D Eyewear transmitter	TXN/V1MTUA
C1	Data Driver (Lower Right)	TXNC11MTUA
C2	Data Driver (Lower Center)	TXNC21MZUA
C3	Data Driver (Lower Left)	TXNC31MZUA
SC	Scan Drive	TXNSC1MZUA
SS	Sustain Drive	TXNSS1MZUA
—	—	—
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MZUA
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1MTUA
—	—	—

TH-P50ST30T



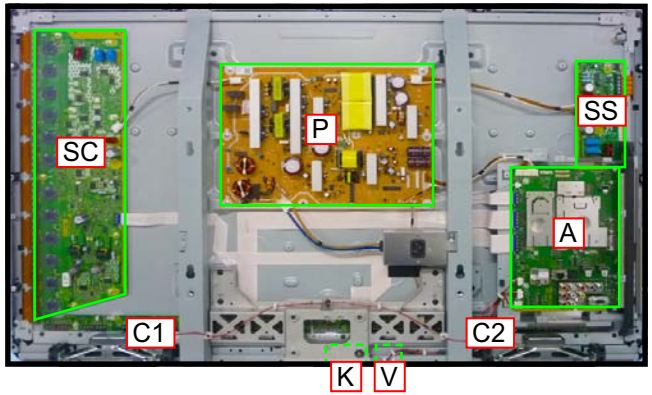
Board Name	Function	Parts Number
P	Power Supply	TXNP11QJUE
P2	Power Supply	TXNP21PNUB50
A	Main AV input, processing	TZTNP01MJUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NCUA42
S	Power Switch	TNPA5394
V	3D Eyewear transmitter	TNPA5396
C1	Data Driver (Lower Right)	TNPA5318
C2	Data Driver (Lower Center)	TXNC211GGK50
C3	Data Driver (Lower Left)	TXNC311GGK50
SC	Scan Drive	TXNSC11GGK50
SS	Sustain Drive	TXNSS11GGK50
SS2	Sustain out (Lower)	TXNSS211GGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MUUA50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TNPA5337
—	—	—

TH-P42ST30T



Board Name	Function	Parts Number
P	Power Supply	TXN/P1QKUE42
—	—	—
A	Main AV input, processing	TZTNP01MKUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NCUA42
S	Power Switch	TNPA5394
V	3D Eyewear transmitter	TNPA5396
C1	Data Driver (Lower Right)	TNPA5314
C2	Data Driver (Lower Left)	TXNC211DHK42
—	—	—
—	—	—
SS	Sustain Drive	TXNSS11DHK42
SS2	Sustain out (Lower)	TXNSS211DHK42
—	—	—
—	—	—
SN	Scan Drive	TXNSN11DHK42

TH-P42UT30T

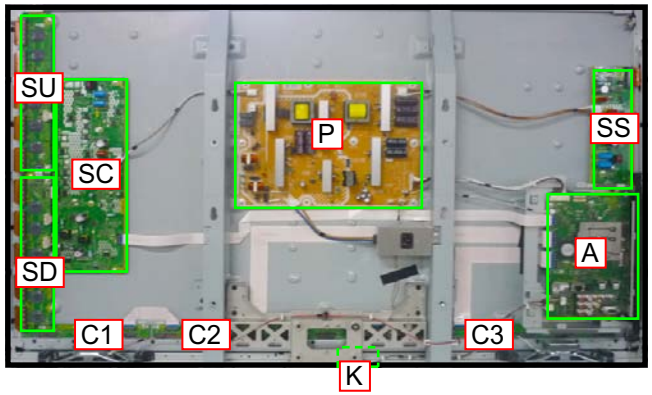


Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE6KK00008
A	Main AV input, processing	TZTNP01NAUM
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
V	3D Eyewear transmitter	TXN/V1QYUJ46
C1	Data Driver (Lower Right)	TXNC111DHK42
C2	Data Driver (Lower Left)	TXNC211FHK42
SS	Sustain Drive	TXNSS11FHK42
SN	Scan Drive	TXNSN11FHK42

2. PCB Location & Function

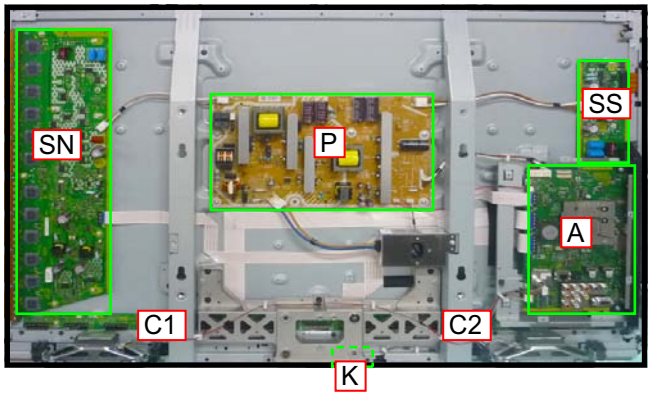
U30 Series

TH-P50U30T



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00009
A	Main AV input, processing	TZTNP01MMUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5318
C2	Data Driver (Lower Center)	TNPA5319
C3	Data Driver (Lower Left)	TNPA5320
SC	Scan Drive	TXNSC11JGK50
SS	Sustain Drive	TXNSS11JGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11JGK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11JGK50
—	————————	————

TH-P42U30T

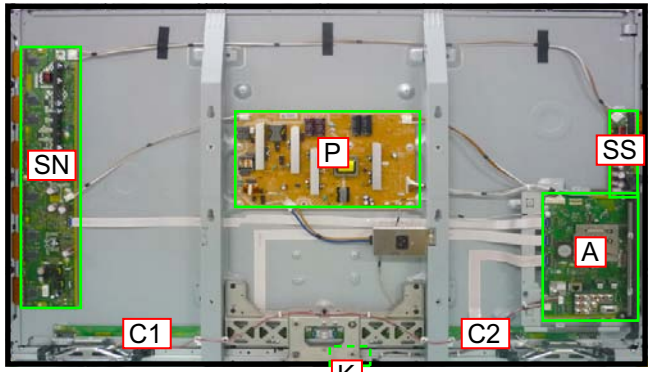


Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00008
A	Main AV input, processing	TZTNP01MPUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5314
C2	Data Driver (Lower Left)	TXNC211FHK42
—	————————	————
—	————————	————
SS	Sustain Drive	TXNSS11FHK42
—	————————	————
—	————————	————
SN	Scan Drive	TXNSN11FHK42

2. PCB Location & Function

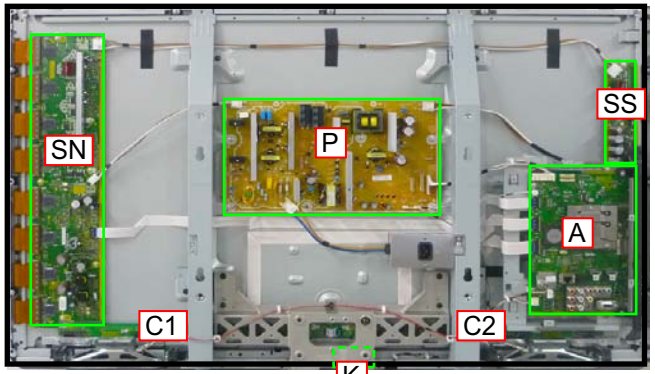
X30 Series

TH-P50X30T



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00007
A	Main AV input, processing	TZTNP01MQUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TXNC111MGK50
C2	Data Driver (Lower Left)	TXNC211MGK50
SS	Sustain Drive	TXNSS11MGK50
SN	Scan Drive	TXNSN11MGK50

TH-P42X30T



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00006
A	Main AV input, processing	TZTNP01MRUT
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TXNC111HHK42
C2	Data Driver (Lower Left)	TXNC211HHK42
SS	Sustain Drive	TXNSS11HHK42
SN	Scan Drive	TXNSN11HHK42

3. PCB List

3. PCB List

	VT30 series		ST30 series			UT30 series	U30 series		X30 series	
Board	TH-P65VT30T	TH-P50VT30T	TH-P55ST30T	TH-P50ST30T	TH-P42ST30T	TH-P42UT30T	TH-P50U30T	TH-P42U30T	TH-P50X30T	TH-P42X30T
P	N0AE6KM00008 (MAIN)	TXNP11QJUE	TXN/P1MZUA	TXNP11QJUE	TXN/P1QKUE42	N0AE6KK00008	N0AE5JK00009	N0AE5JK00008	N0AE5JK00007	N0AE5JK00006
	N0AE6KM00004 (SUS)	TXNP21PNUB50 (P2)	----	TXNP21PNUB50 (P2)	----	----	----	----	----	----
	N0AE6KM00005 (SUB)	----	----	----	----	----	----	----	----	----
A	TZTNP01MHUM	TZTNP01MFUT	TZTNP01MMUM	TZTNP01MJUT	TZTNP01MKUT	TZTNP01NAUM	TZTNP01MMUT	TZTNP01MPUT	TZTNP01MQUT	TZTNP01MRUT
K	TXN/K1MTUA	TXN/K1NNUA42	TXN/K1MTUA	TXN/K1NCUA42	TXN/K1NCUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42
S	TXN/S1MTUA	TXN/S1MZUJ46	TXN/S1MTUA	TNPA5394	TNPA5394	----	----	----	----	----
V	TXN/V1MTUA	TXN/V1MZUJ46	TXN/V1MTUA	TNPA5396	TNPA5396	TXN/V1QYUJ46	----	----	----	----
C1	TXNC111UHK	TXNC11NBUJ50	TXNC11MTUA	TNPA5318	TNPA5314	TXNC111DHK42	TNPA5318	TNPA5314	TXNC111MGK50	TXNC111HHK42
C2	TXNC211UHK	TXNC211GGK50	TXNC21MZUA	TXNC211GGK50	TXNC211DHK42	TXNC211FHK42	TNPA5319	TXNC211FHK42	TXNC211MGK50	TXNC211HHK42
C3	TXNC311UHK	TXNC311GGK50	TXNC31MZUA	TXNC311GGK50	----	----	TNPA5320	----	----	----
SC	TXNSC11UHK	TXNSC11GGKB	TXNSC1MZUA	TXNSC11GGK50	----	----	TXNSC11JGK50	----	----	----
SS	TXNSS11UHK	TXNSS11GGK50	TXNSS1MZUA	TXNSS11GGK50	TXNSS11DHK42	TXNSS11FHK42	TXNSS11JGK50	TXNSS11FHK42	TXNSS11MGK50	TXNSS11HHK42
SS2	TXNSS211UHK	TXNSS211GGK	----	TXNSS211GGK50	TXNSS211DHK42	----	----	----	----	----
SU	TXNSU11UHK	TXNSU1MUUA50	TXNSU1MZUA	TXNSU1MUUA50	----	----	TXNSU11JGK50	----	----	----
SD	TXNSD11UHK	TXNSD1NBUJ50	TXNSD1MTUA	TNPA5337	----	----	TXNSD11JGK50	----	----	----
SN	----	----	----	----	TXNSN11DHK42	TXNSN11FHK42	----	TXNSN11FHK42	TXNSN11MGK50	TXNSN11HHK42

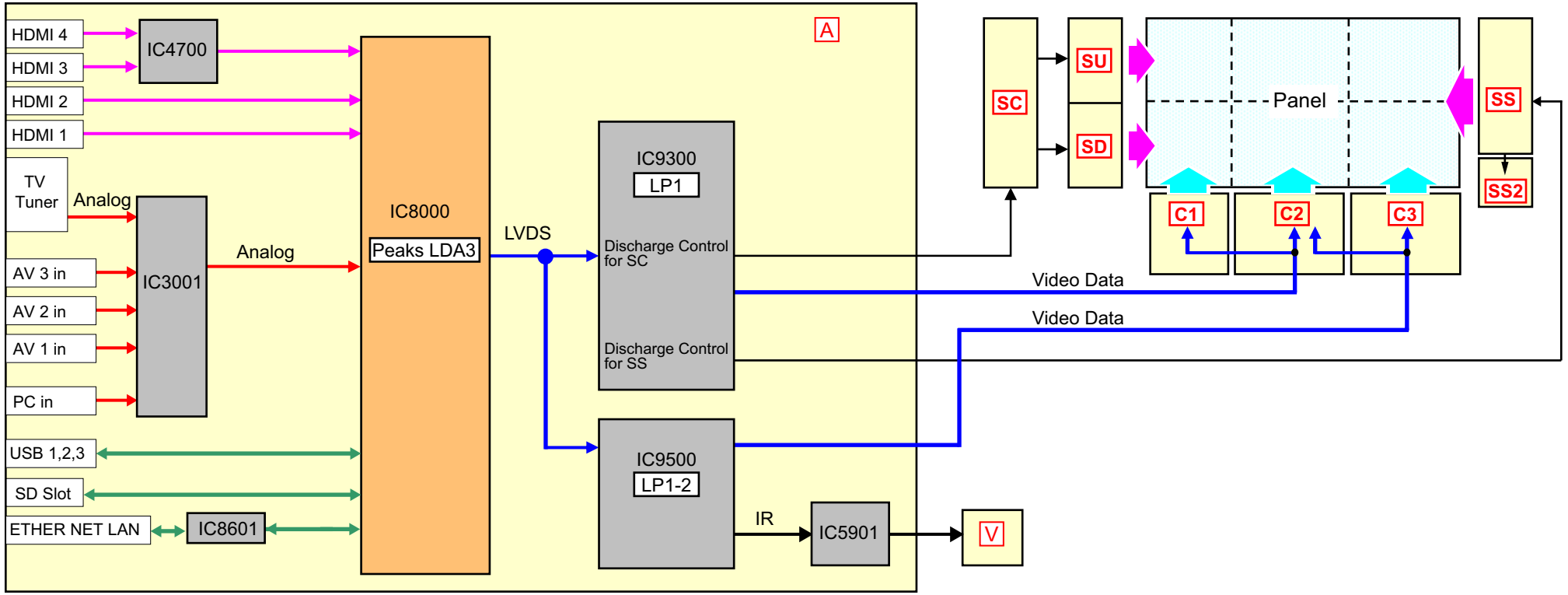
4. Block Diagram

4.Block Diagram

Signal Processing Circuit (1) VT30 series

<PCB Function>

[e.g.TH-P50VT30T]



IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC4700
: HDMI SW
IC8000
: Peaks LDA3
(Digital Video Processor)
IC5901
: IR LED DRIVER

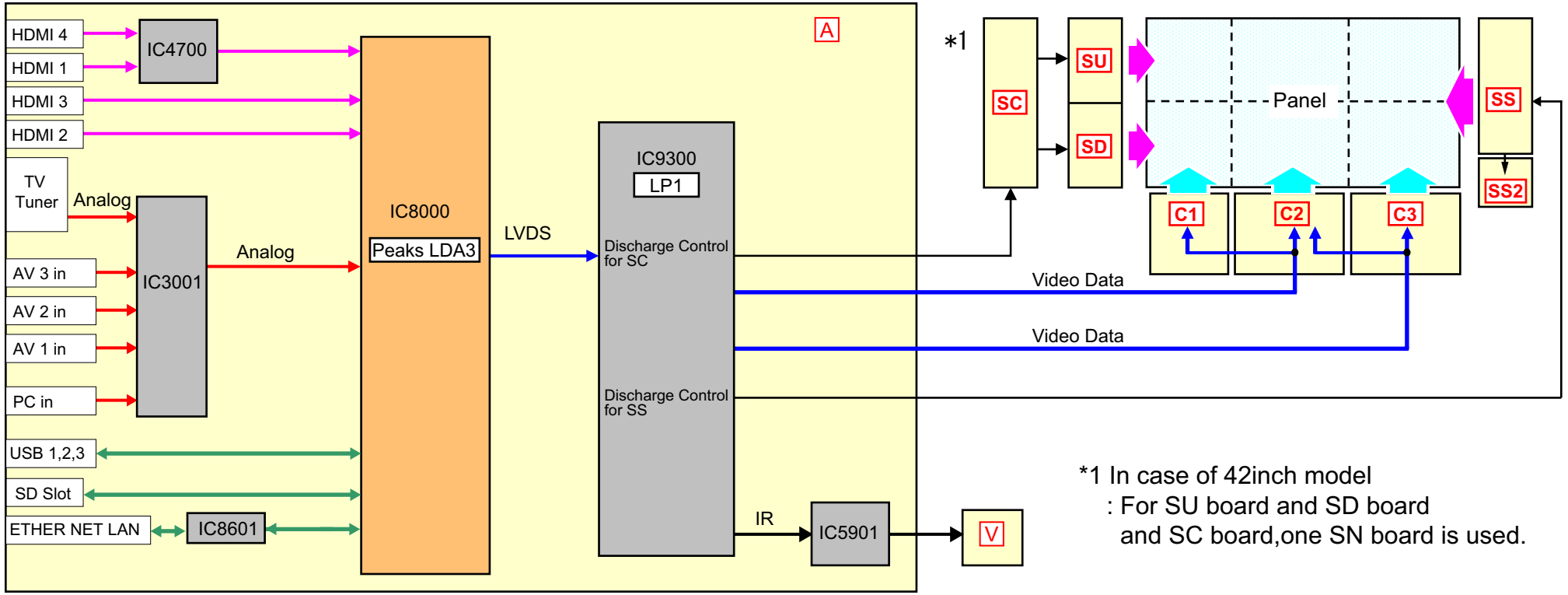
IC9300
: LP1
Sub Field Processor,
Discharge Control
Plasma AI
IC9500
: LP1-2
Sub Field Processor,
Plasma AI

4.Block Diagram

Signal Processing Circuit (2) ST30 series

<PCB Function>

[e.g.TH-P50ST30T]



*1 In case of 42inch model
: For SU board and SD board and SC board,one SN board is used.

IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC4700
: HDMI SW
IC8000
: Peaks LDA3
(Digital Video Processor)
IC5901
: IR LED DRIVER

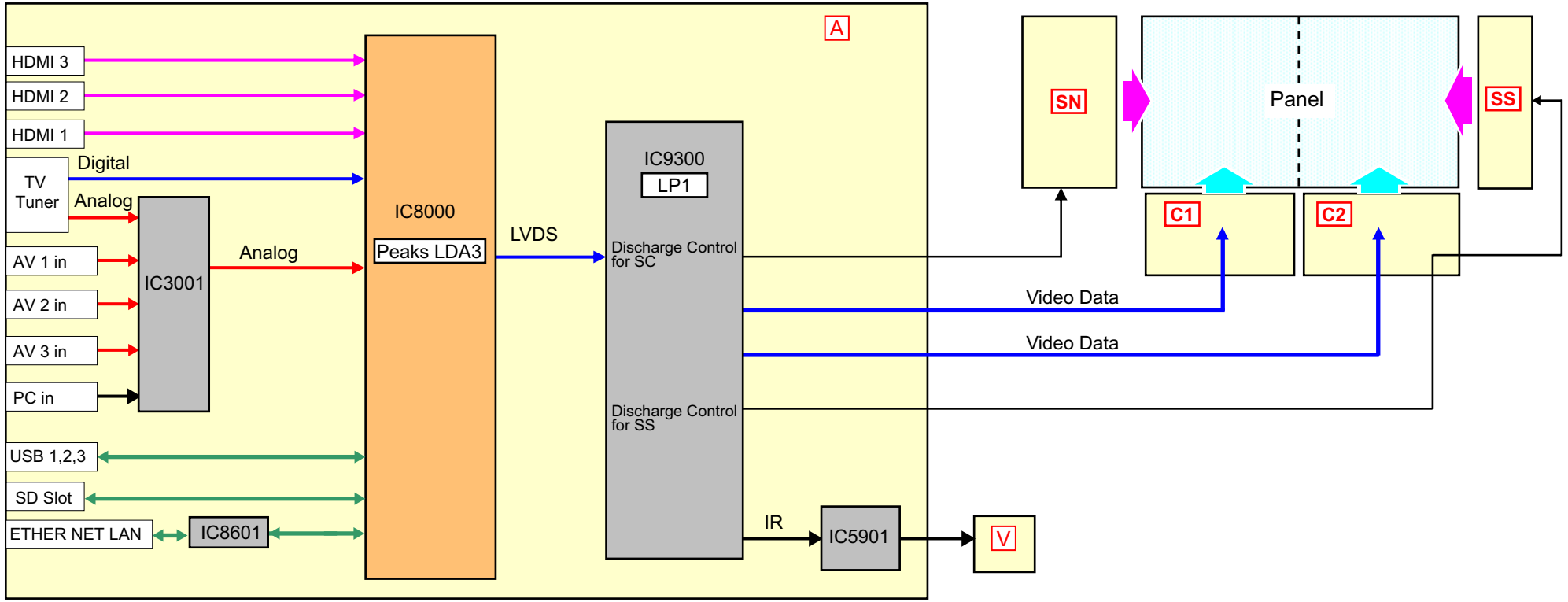
IC9300
: LP1
Sub Field Processor,
Discharge Control
Plasma AI

4.Block Diagram

Signal Processing Circuit (3) UT30 series

<PCB Function>

[e.g.TH-P42UT30T]



IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC8000
: Peaks LDA3
(Digital Video Processor)
IC5901
: IR LED DRIVER

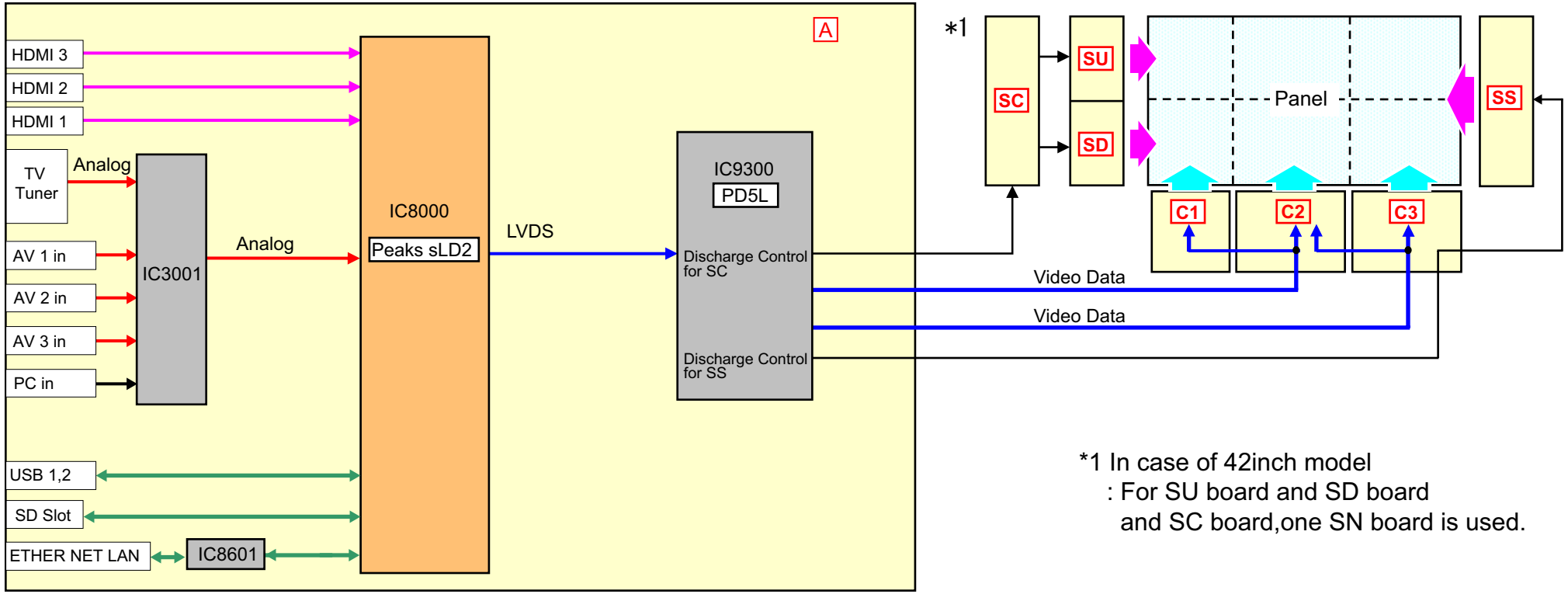
IC9300
: LP1
Sub Field Processor,
Discharge Control
Plasma AI

4.Block Diagram

Signal Processing Circuit (4) U30 series

<PCB Function>

[e.g.TH-P50U30T]



*1 In case of 42inch model
: For SU board and SD board
and SC board,one SN board is used.

IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC8000
: Peaks sLD2
(Digital Video Processor)

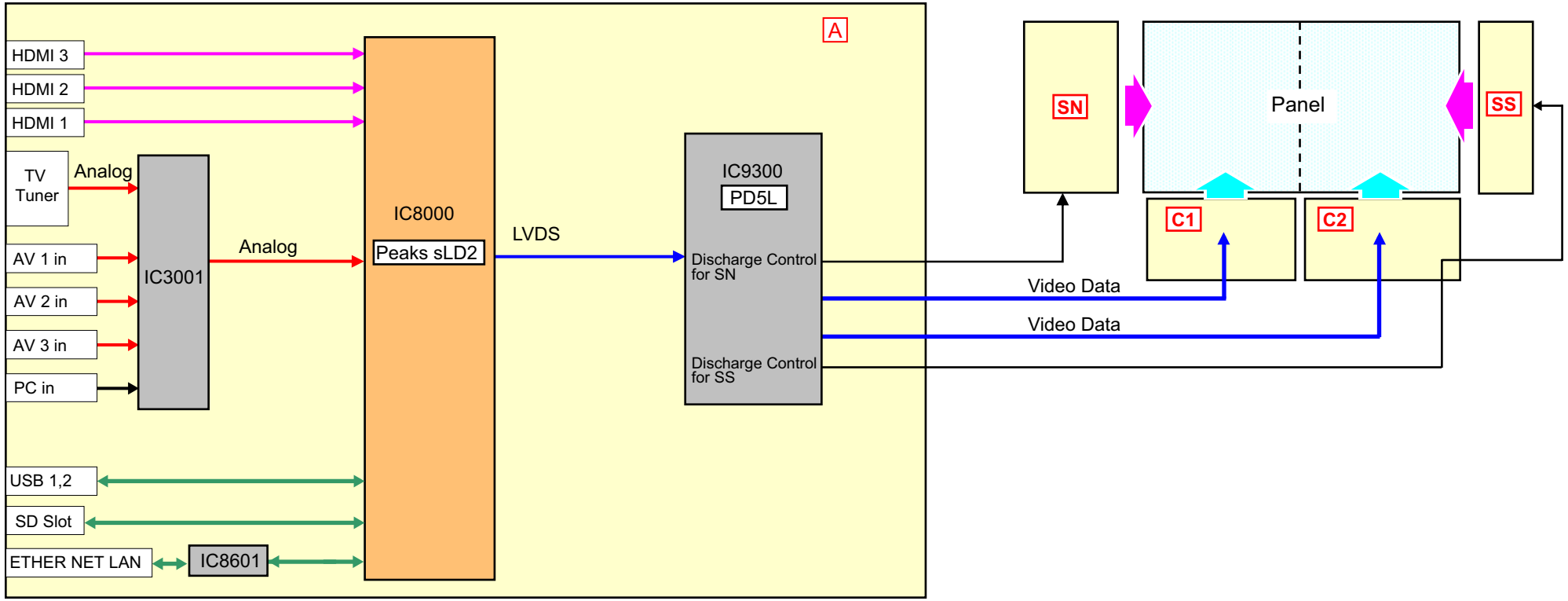
IC9300
: PD5L
Sub Field Processor,
Discharge Control
Plasma AI

4.Block Diagram

Signal Processing Circuit (5) X30 series

<PCB Function>

[e.g.TH-P50X30T]



IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC8000
: Peaks sLD2
(Digital Video Processor)

IC9300
: PD5L
Sub Field Processor,
Discharge Control
Plasma AI

5. Troubleshooting

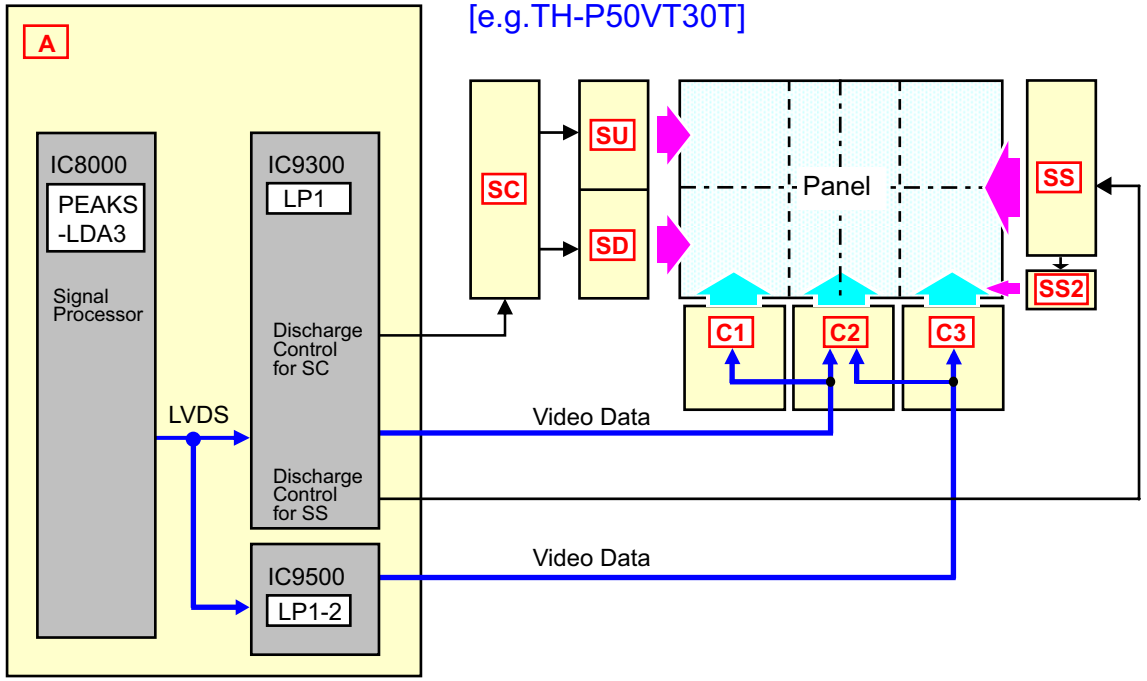
Relation of board and display area (1/3)

You know the possible defective board by picture trouble area.

[In case of VT30/ST30/UT30 series]
(3D models)

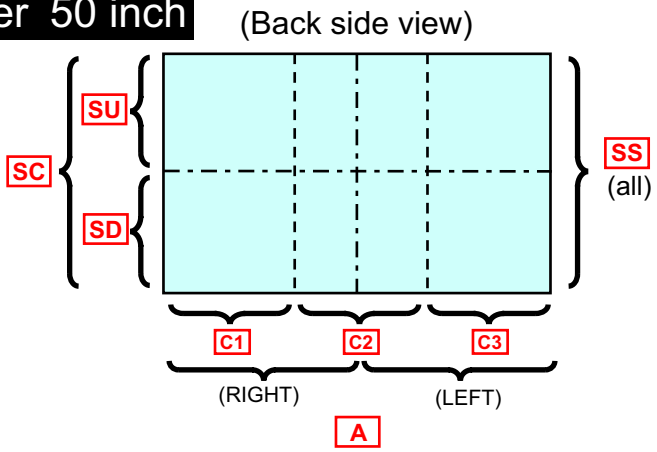
<Display device block diagram>

[e.g.TH-P50VT30T]

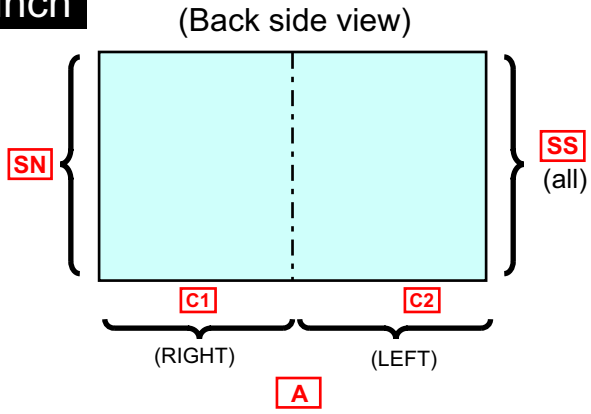


<Relation of defective board and picture trouble area >

Over 50 inch



42 inch



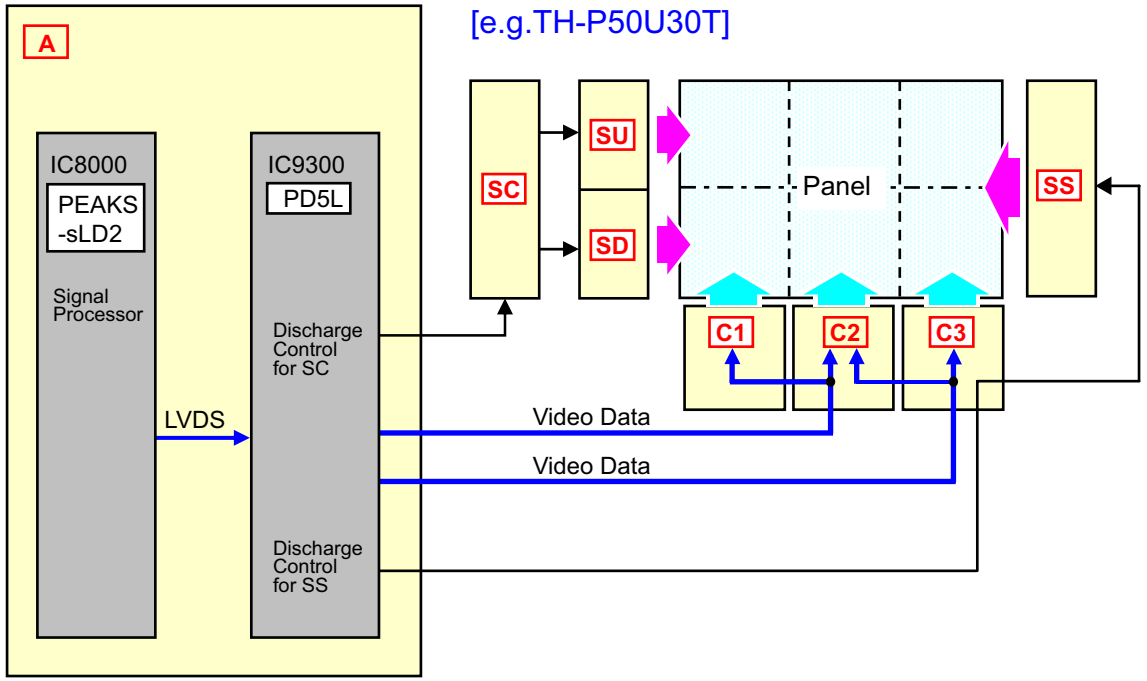
Relation of board and display area (2/3)

You know the possible defective board by picture trouble area.

[In case of U30 series]
(2D Full HD models)

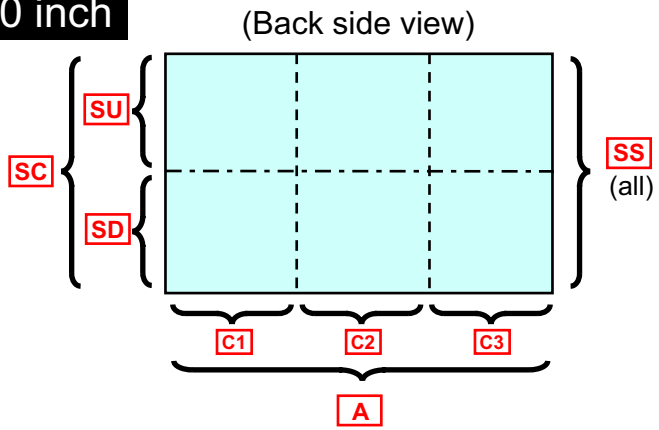
<Display device block diagram>

[e.g.TH-P50U30T]

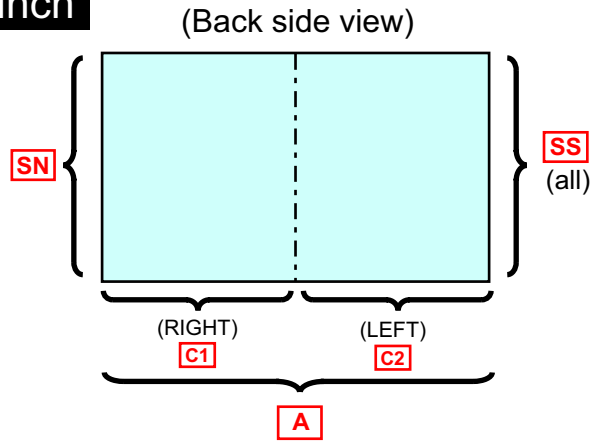


<Relation of defective board and picture trouble area >

50 inch



42 inch



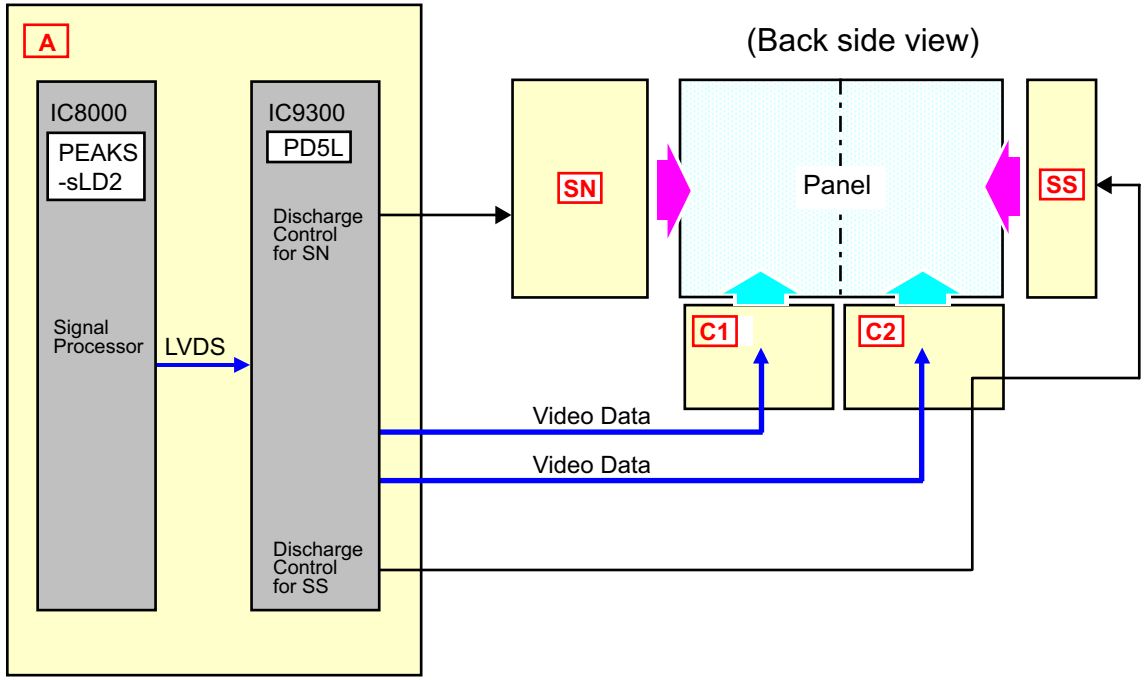
5.Troubleshooting for picture trouble

Relation of board and display area (3/3)

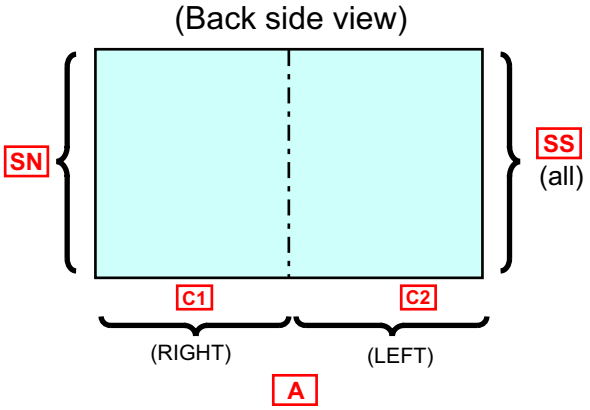
You know the possible defective board by picture trouble area.

[In case of X30 series]
(HD models)

<Display device block diagram>



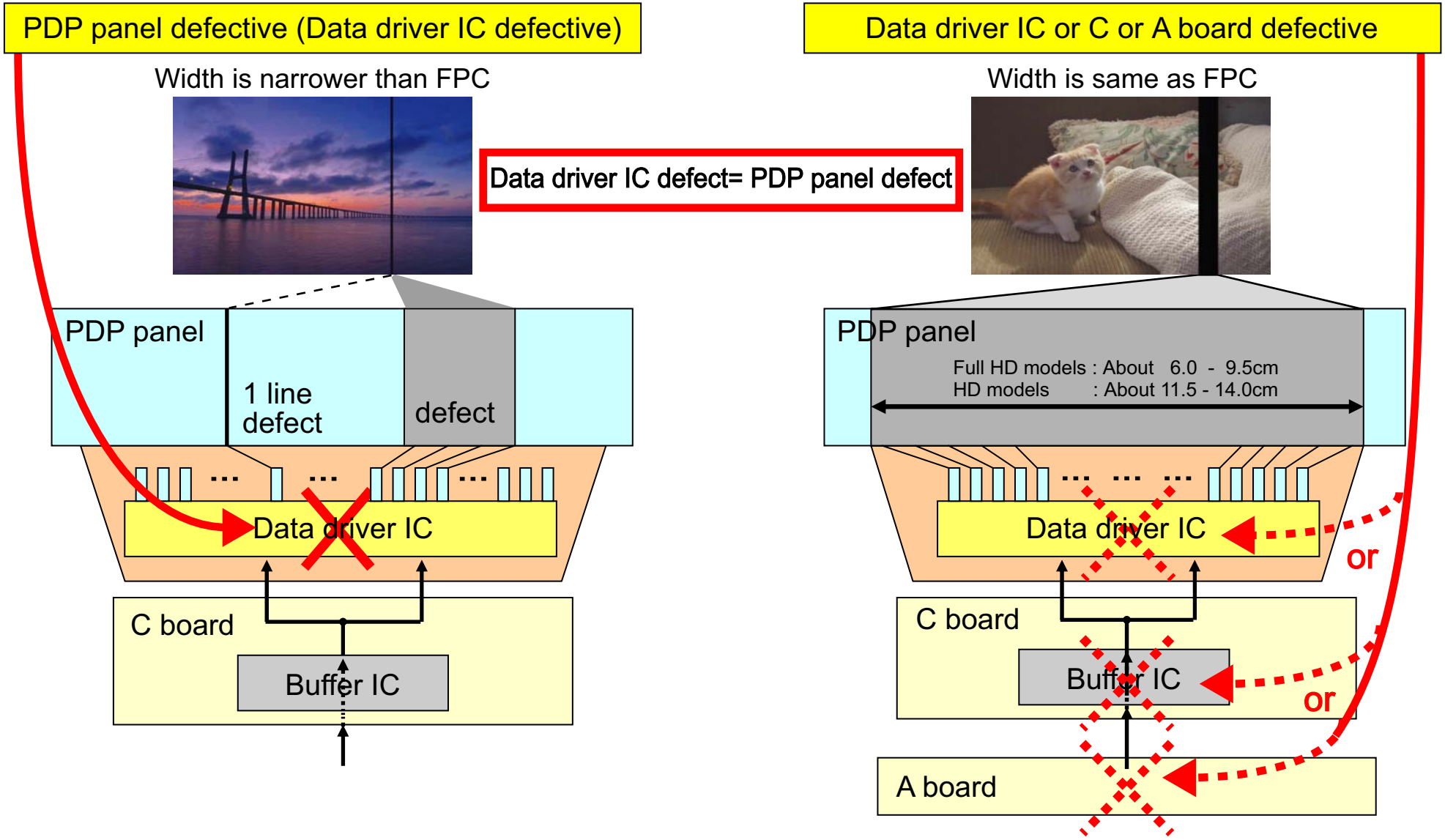
<Relation of defective board and picture trouble area >



5.Troubleshooting for picture trouble

Picture trouble [diagnosis of vertical line]

[In case of VT30 / ST30 / UT30 / U30 / X30 series]



5.Troubleshooting for picture trouble

Picture trouble [diagnosis of horizontal line]

[In case of VT30 / ST30 / UT30 / U30 / X30 series]

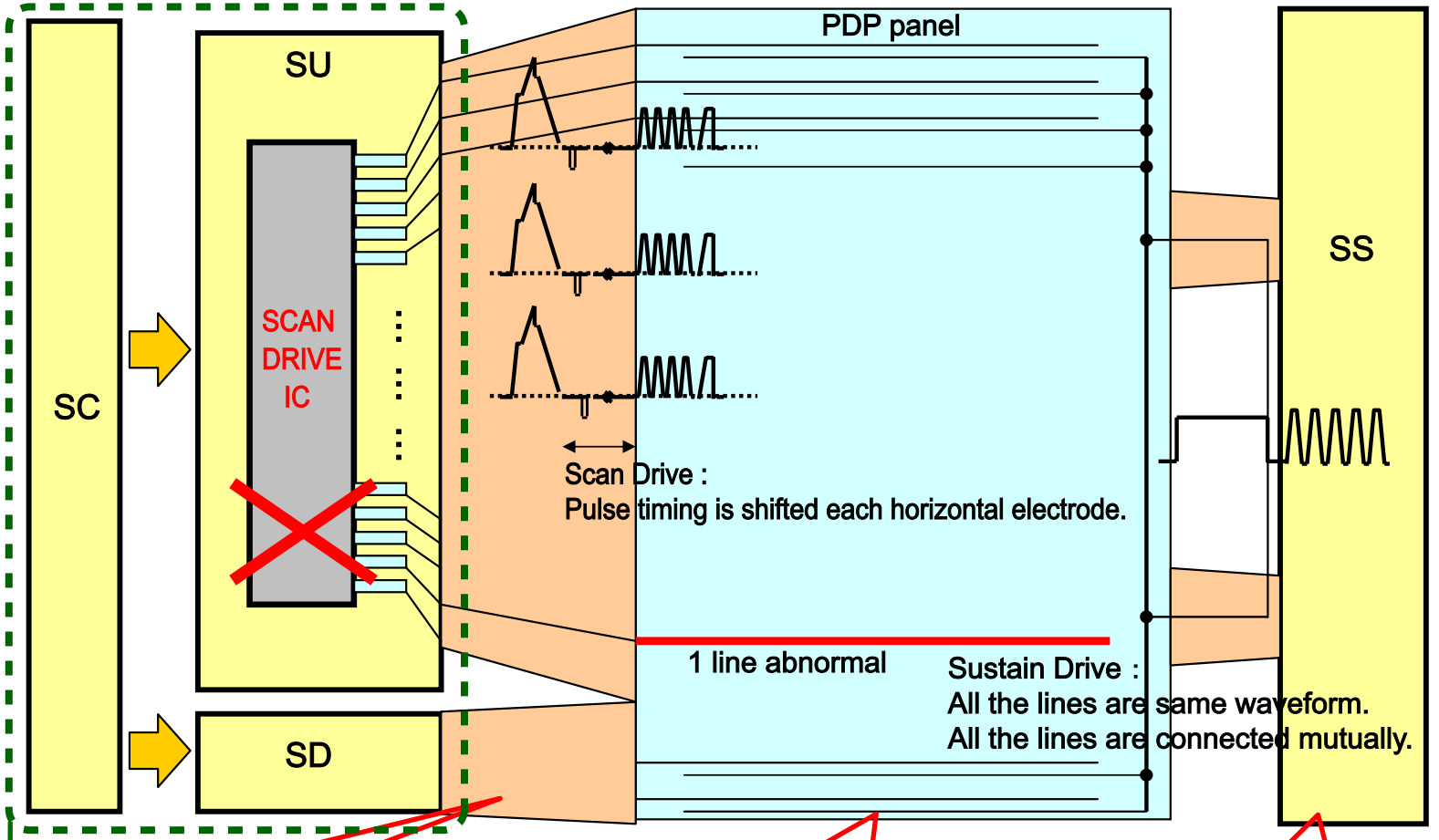
Over 50inch

SU board defective

SD board defective

42inch / HD model

SN board defective



When FFC is damaged, it is needed to replace the panel because of FFC is bonded to the panel directly.

If horizontal line is showed, it is possible that defect of one pin of scan drive IC or failure of connection to the panel or damage of electrode on the panel.

SS board defect doesn't cause horizontal line problem because of electrodes on SS board are connected mutually.

In case of 42inch models and HD models : For SU board and SD board and SC board,one SN board is used.

< Mirror function >

Mirror Function : Picture can be reversed left and right or up and down.

For vertical lines problems, this feature can help to determine if the problem is the A board or the panel.
If the position of the line/lines changes when performing this function, the A board is possibly defective.
The rear cover does not have to be removed to do this.

To enter the Mirror Function.

From the Service Mode Menu, Press 1 or 2 to select "OPTION".
Press 3 or 4 to select "MIRROR".
Press the VOLUME up or down button to change the Mirror's data.
Data = 00 Default data (Mirror function is off).
Data = 01 Picture is reversed left and right.
Data = 02 Picture is reversed up and down.

<How to diagnose by using "Mirror function">

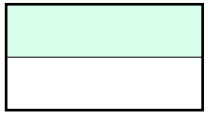
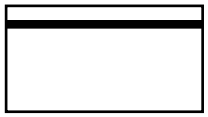
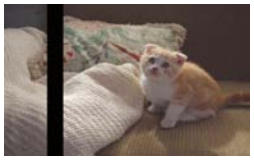
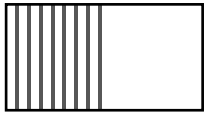
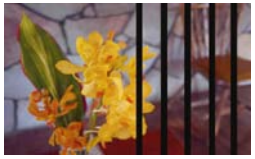
Vertical Line	Data : 00	→ Data : 01	
		the picture & line : reverse	only the picture : reverse
		Defective Block : A board	Defective Block : Panel or C board
Horizontal Line	Data : 00	→ Data : 02	
		the picture & line : reverse	only the picture : reverse
		Defective Block : A board	Defective Block : Panel or SD board *

* In case of 42inch models and HD models : For SU board and SD board and SC board,one SN board is used.

5.Troubleshooting for picture trouble

Summary of picture trouble

< Some part of screen : VT30 / ST30 / UT30 / U30 / X30 series >

Symptom	Actual symptom	Defective board
Trouble at Upper or Lower half 		Over 50inch : SU / SD 42inch and HD model : SN
Horizontal line (Upper or Lower side) 		Over 50inch : SU / SD 42inch and HD model : SN or panel
Trouble at Left or Center or Right part (42inch and HD model : Left or Right half)	Over 50inch 42 inch and HD model	50inch : C1-C3 42inch and HD model : C1,C2
Vertical line (Width is same as FPC)		C or A or PDP panel
Vertical line (Width is narrower than FPC)		PDP panel
Regular bar 		A

<Model>

VT30, ST30, UT30, U30, X30 series

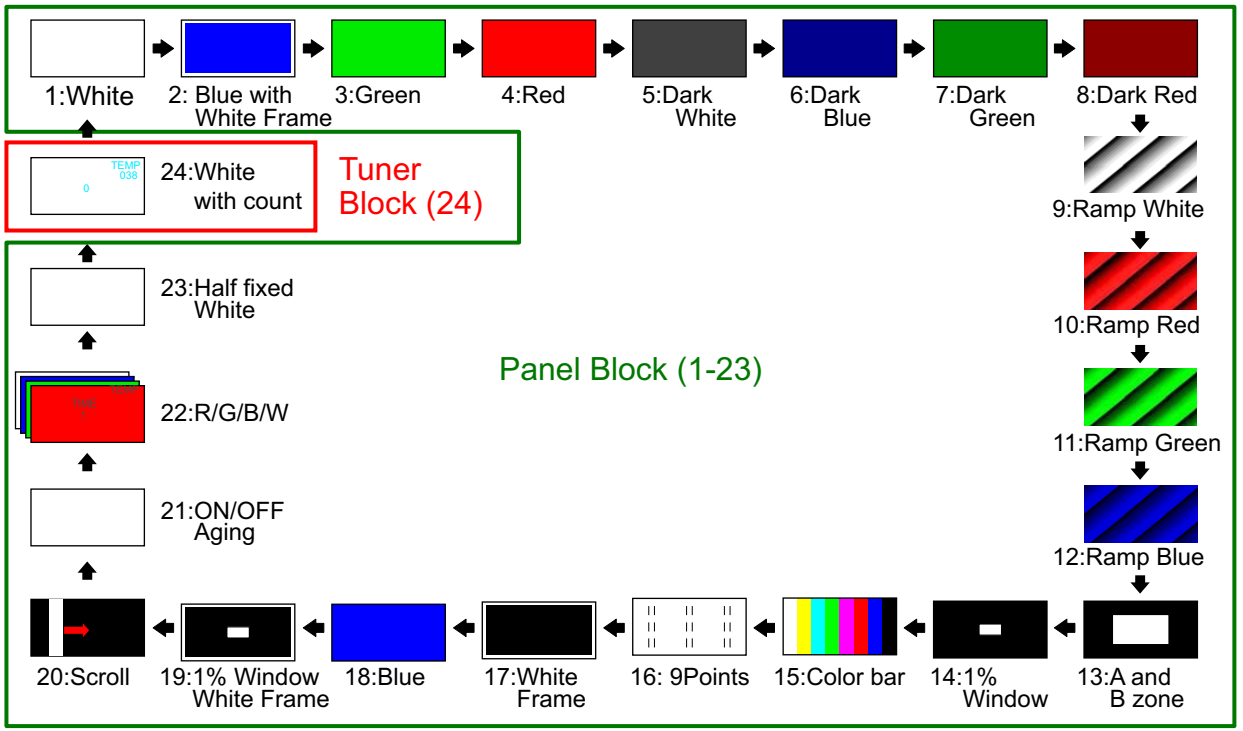
<Symptom>

Picture Noise, Full Vertical Line,Abnormal color

<How to enter the Test Pattern>

1.Press the “VOLUME -” on the TV set and push “ i ” button of remote controller 3 times at the same time.
2. After this procedure, you can enter “Service Mode” and select “AGING”, then “Test pattern” will appear.
3. Push “3" button of Remote Controller to select the test pattern mode to forward.
4. Push “4“ button of Remote Controller to select the test pattern mode to reverse.

<Test Pattern (Normal)>



<Diagnosis>

How to diagnose by using test pattern

Abnormal picture
(Picture Noise, Full Vertical Line,Abnormal color)

Test pattern (1-23)	Defective Block (Board)
Abnormal	Panel Block (A Board or Panel)
Normal	Tuner Block (A Board)

No picture

Test pattern	Defective Block (Board)
No picture	Panel Block (A Board or Panel)
O.K	Tuner Block (A Board)

Summary of picture trouble

< All area of screen >

Symptom	Actual symptom	Defective board
Irregular Color		A board
All vertical line		A board
Abnormal electric discharge		in case of Over 50inch SC / SS board in case of 42inch and HD model SN / SS board

6. No Power Troubleshooting (When LED doesn't Blink)

[Model]
TH-P65/50VT30T, TH-P55/50/42ST30T

	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green blinks [High-speed blinking] (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board
3	Power LED is green (No picture/No sound)	P15V:voltage down	SN/SC-board A-board

Troubleshooting Flowcharts
: refer to 31 page - 33 page

[Model]
TH-P42UT30T

	Power LED error code	Contents	Check points
1	Power LED is green (No picture/No sound)	Vsus:voltage down P15V:voltage down	P-board SN/SC-board SS-board A-board

Troubleshooting Flowcharts
: refer to 34 page

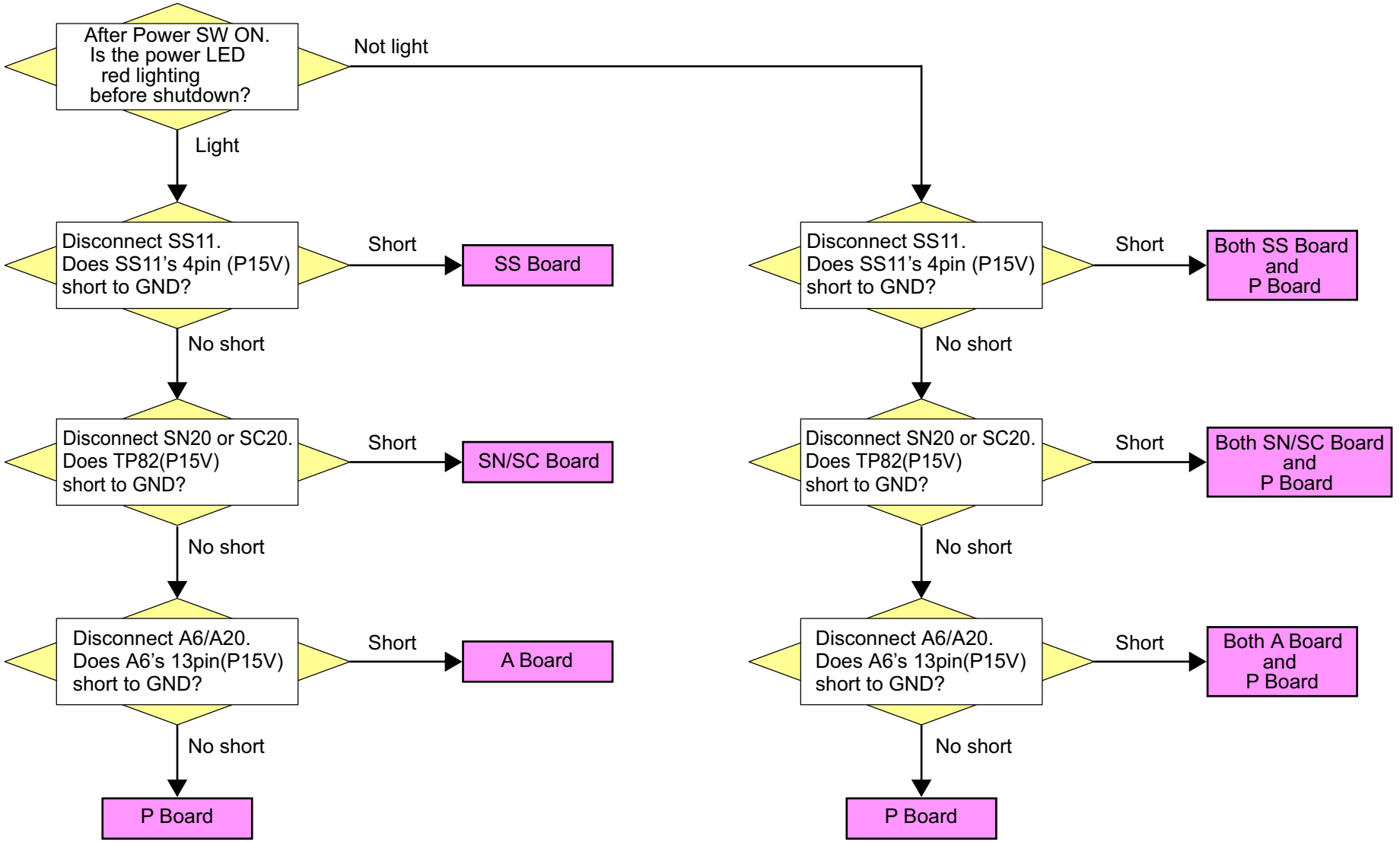
[Model]
TH-P50/42U30T, TH-P50/42X30T

	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal Vsus:voltage down P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board

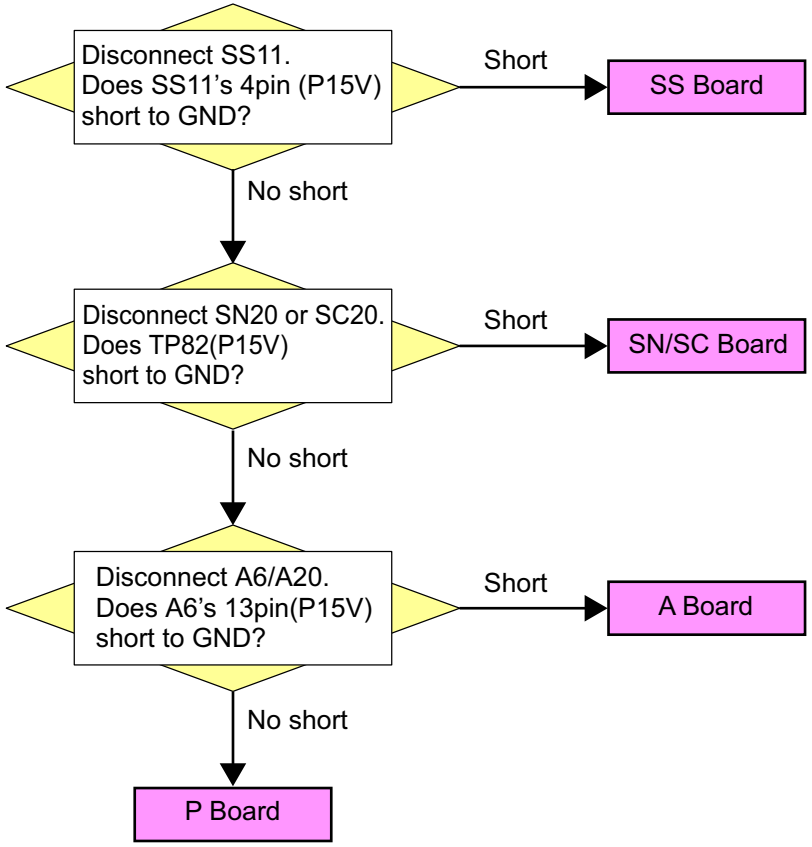
Troubleshooting Flowcharts
: refer to 35 page - 36 page

[Model] TH-P65/50VT30T, TH-P55/50/42ST30T

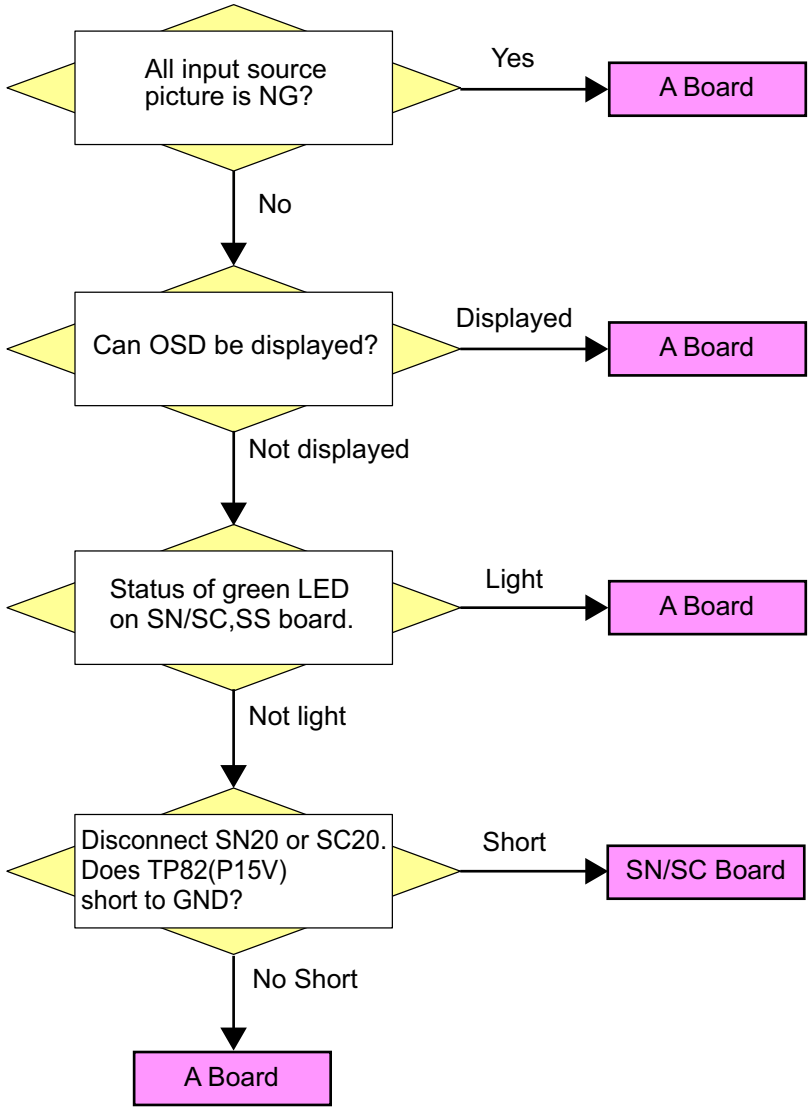
< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green blinking [High-speed blinks] : No Picture, No Sound >

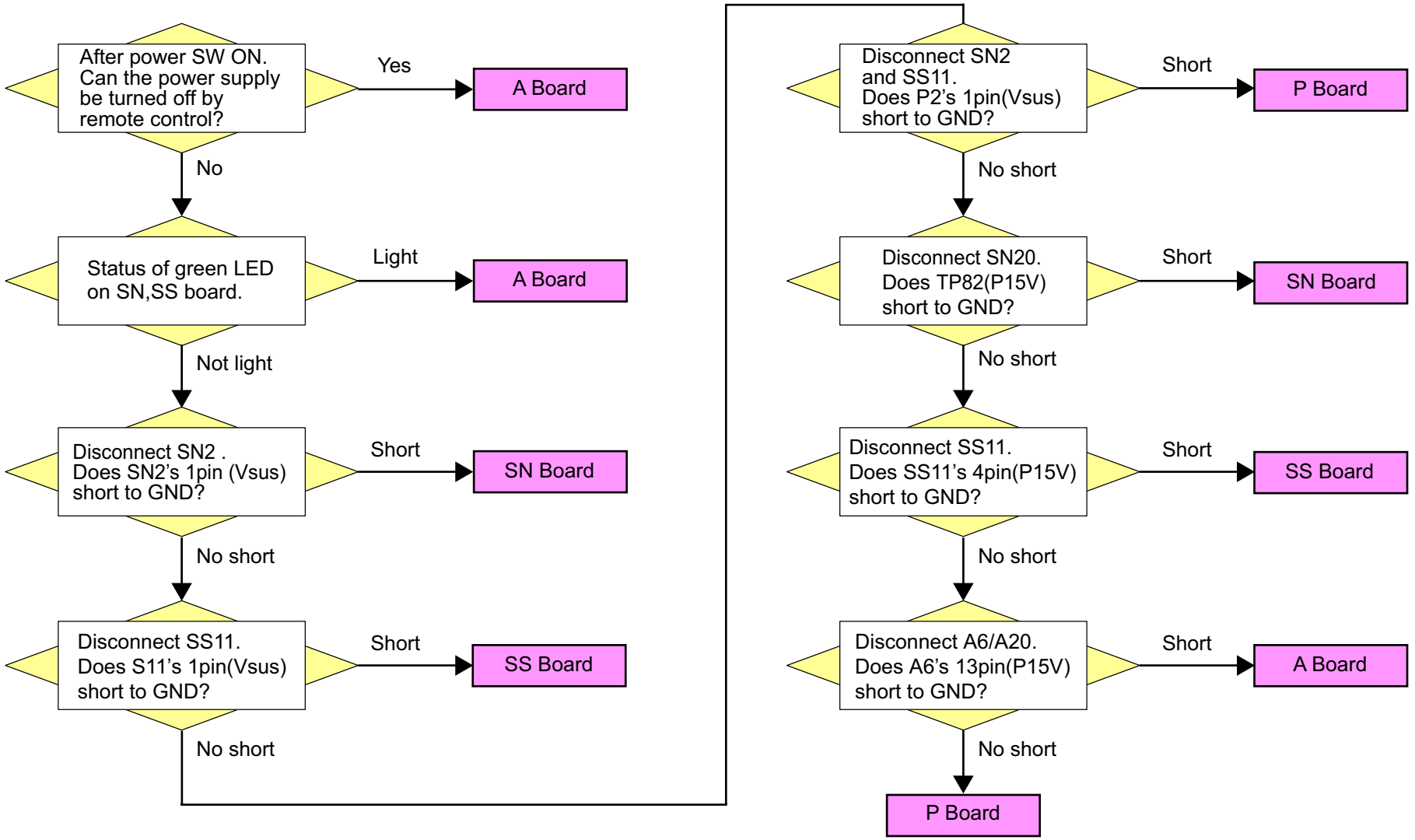


< 3. Power LED is green : No Picture, No Sound >



[Model] TH-P42UT30T

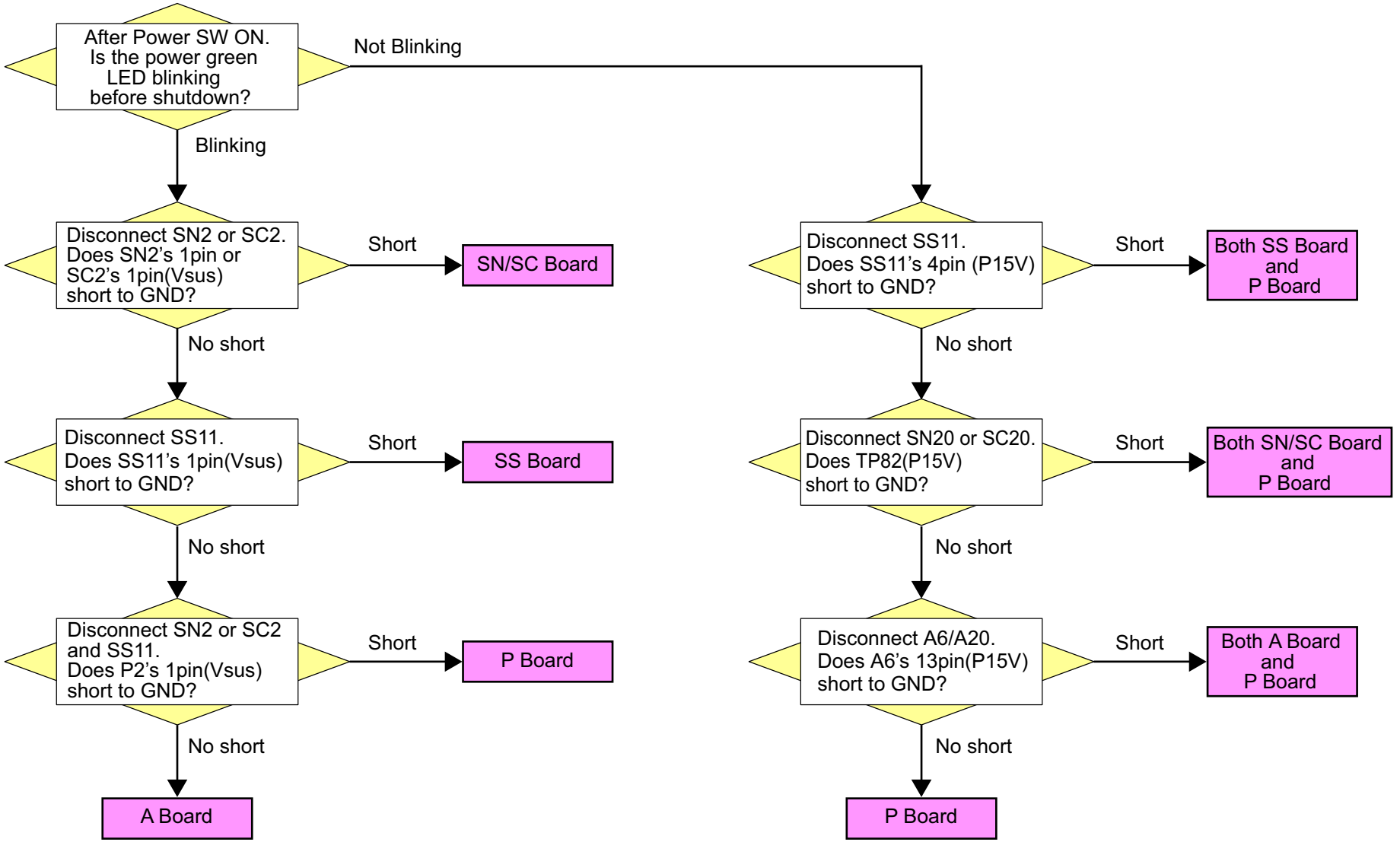
< 1. Power LED is green : No Picture, No Sound >



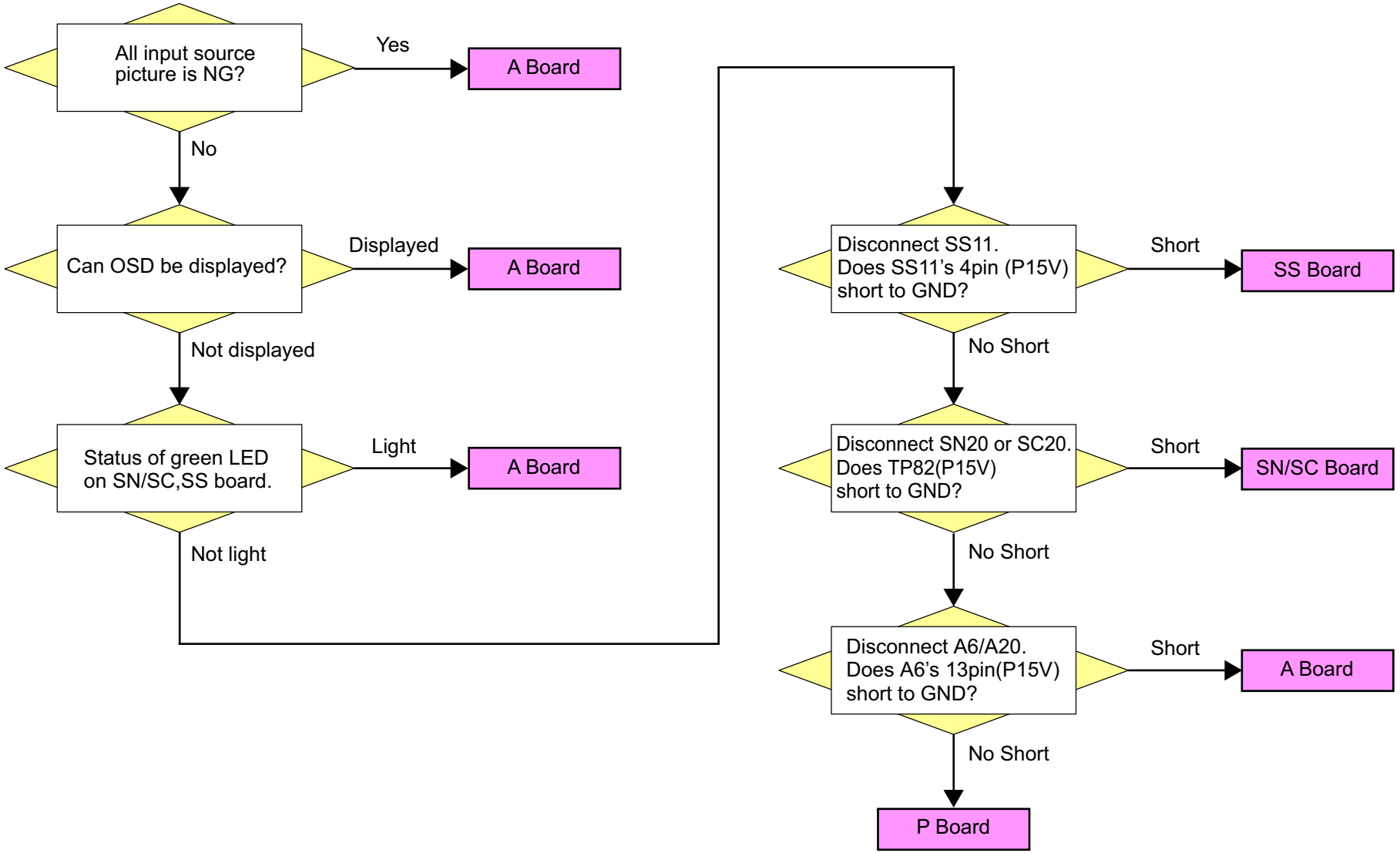
[Model]

TH-P50/42U30T, TH-P50/42X30T

< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green : No Picture, No Sound >



7. Case Example of Picture Trouble

7.Case Example of Picture Trouble

[1] Model : 2011 model

[2] Symptom : Rainbow vertical bar

[3] Defective parts :

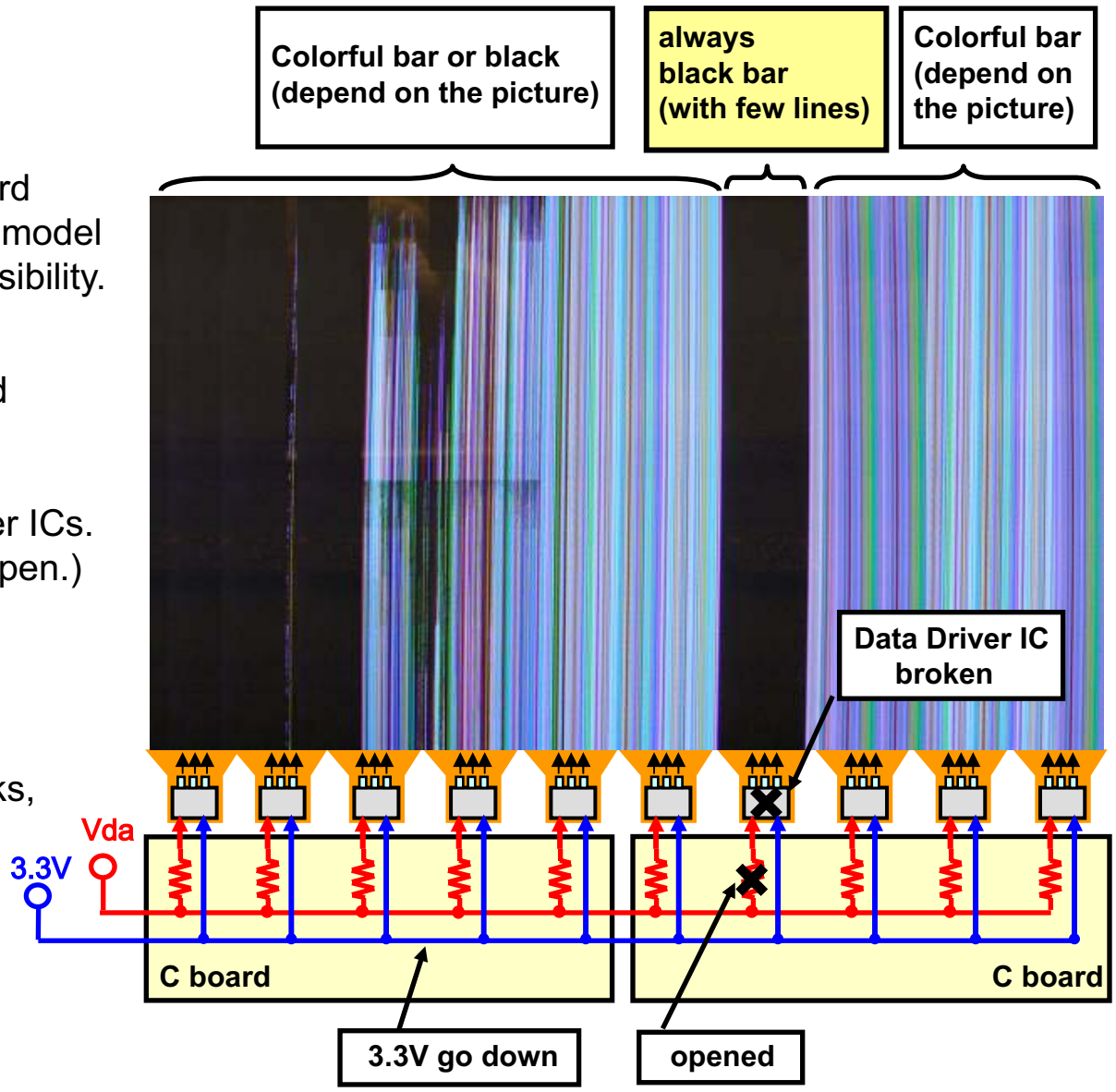
This symptom is very likely to be the A board defect for the previous model, but for 2011 model the Panel and C board defect is a high possibility.

[4] Summary :

If one of the Data Driver IC is defective and 3.3V go down, the other Data Driver ICs don't work correctly.
Because 3.3V is common for all Data Driver ICs.
(Vda line is isolated due to resister being open.)

[5] Check point (Trouble shoot) :

Check by displaying some images.
If the position (length) of colorful bars change and there are some black bar blocks, the data driver IC is defective.
If there is no black bar block, check the connection of cables between A and C board.
If trouble still persists, the A board could be defective.



[6] Detail Troubleshoot : Short check of the P3.3V line

Unplug the TV

Check short circuit between P3.3V and GND. (at one of Capacitor on C1/2/3 board)

Not Shorted → Check connections between the A board and the C boards. (A31,A32,C11,C21) Make sure that all connectors are properly seated.

Not fixed yet → Replace the A board

Shorted

Remove connectors A31 and A32 from A board. And check short circuit again.

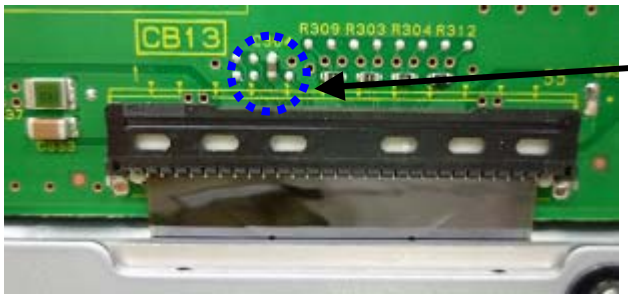
Not Shorted → Replace the A board

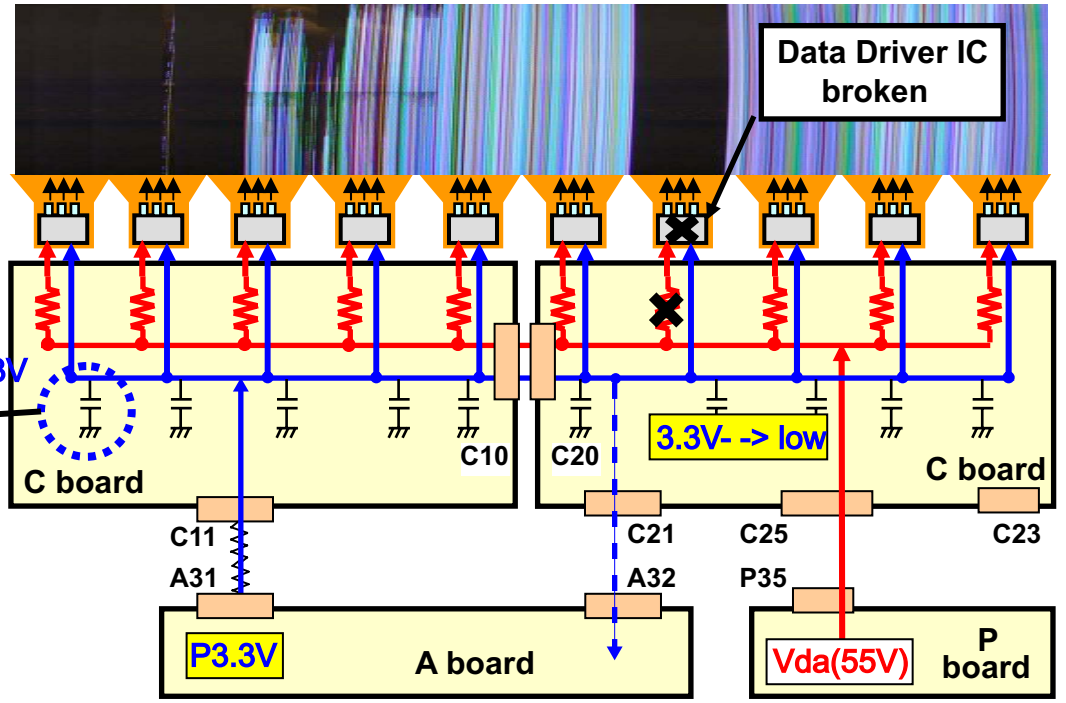
Shorted

Replace PDP Panel and C# board

There is a capacitor beside the each connector CB##.

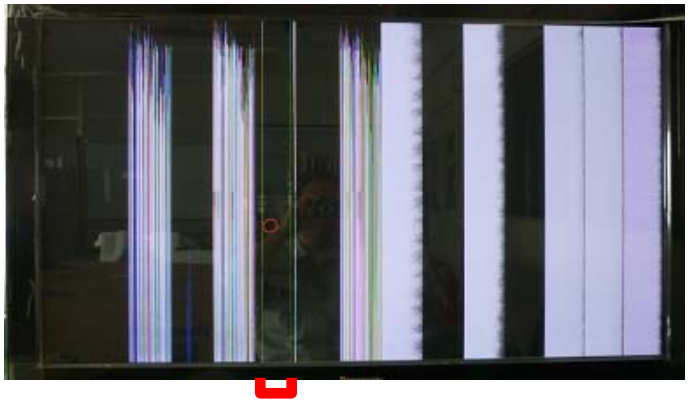
P3.3V





7.Case Example of Picture Trouble

[7] Symptom example (another image)

Normal Image		Defective unit
	⇔	
	⇔	
	⇔	

Change history

Version	Contents	date
Ver 1.0	First Version	26-Jul-11
Ver 1.1	2. PCB Location & Function (page 6) : TH-P65VT30T was added. 2. PCB Location & Function (page 8) : TH-P42UT30T was added. 3. PCB List (page 12) : TH-P65VT30T & TH-P42UT30T was added. 4. Block Diagram (page 16) : TH-P42UT30T was added.	24-Aug-11